Name:_____ Class:_____ Date:_____

Tutorial Ch 1

Indicate the answer choice that best completes the statement or answers the question.

1. A company produces packets of soap powder labeled "Giant size 32 ounces." The actual weight of soap powder in such a box has a Normal distribution with a mean of 33 ounces and a standard deviation of 0.7 ounce. To avoid dissatisfied customers, a box of soap is considered underweight if it weighs less than 32 ounces. To avoid losing money, the top 5% (the heaviest 5%) is labeled overweight. How heavy does a box have to be in order to be labeled overweight?

1.64

a. 31.60 ounces
b. 31.85 ounces
c. 34.15 ounces
d. 34.40 ounces

2. 5 A study of 2007 model automobiles was conducted. In the study the following variables were considered: the **Region** in which the car was manufactured (Europe, North America, Asia); the **Type** of automobile (compact, midsize, large); the fuel economy in city driving of the automobile (**MPG-City**); volume of the engine in liters (**EngSize**); and the type of **Fuel** used (regular, premium, diesel).The variables Region, Type, MPG-City, EngSize, and Fuel are, respectively,

a. quantitative, categorical, categorical, quantitative, quantitative.
b. categorical, categorical, quantitative, categorical, categorical.
c. categorical, categorical, quantitative, categorical, quantitative.
d. categorical, categorical, quantitative, quantitative, categorical.
e. This cannot be determined without knowing the values of the various variables.

3. On the first day of class, statistics professors ask each student to fill out a demographic questionnaire to learn information about their class. Which of the following variables is(are) quantitative?

a. Gender
b. Marital status
c. Highest education level of your mother (e.g., high school grad, college grad, etc.)
d. Household income

4. A study was conducted on the distance that various brand-name golf balls would travel. The study involved the use of a standard testing machine and a seven iron. A selection of results from the study is given below for the distance (in yards) for each brand of ball.
144.0 145.8 138.7 141.3 142.8 143.8 145.8 144.5
The mean $\bar{x}$ and the standard deviation s of these measurements (in yards) are, respectively:

143.3

.49+6.25+21.16+4+1+.25+6.25+1.44

a. 143.90 and 3.10.
b. 143.34 and 2.39.
c. 142.25 and 5.73.
d. 143.34 and 2.24.
e. 143.90 and 2.39.

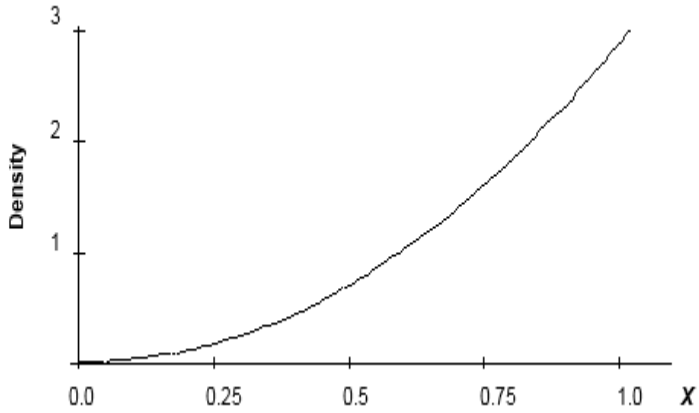
5. The scores on a university examination are Normally distributed with a mean of 62 and a standard deviation of 11. If the bottom 5% of students will fail the course, what is the lowest mark that a student can have and still

Tutorial Ch 1

be awarded a passing grade?

a. 62
b. 57
c. 44
d. 40

6. For the density curve below, which of the following statements is TRUE?

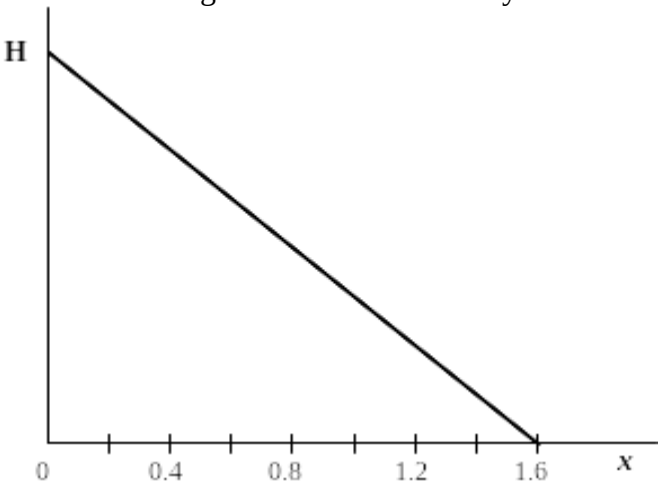


a. The mean and median are equal.
b. The mean is greater than the median.
c. The mean is less than the median.
d. The mean could be either greater than or less than the median.

7. What are labels used for in data sets?

a. To identify distributions
b. To identify values
c. To identify cases
d. None of the above

8. The following curve is to be a density curve for the variable *x*.



Name:_____ Class:_____ Date:_____

Tutorial Ch 1

What must be the value of the point on the vertical axis labeled **H** for this to be a proper density function?

a. 1.60
b. 1.00
c. 0.80
d. 1.25
e. 0.625

9. A well-known maker of jams and jellies packages its jams in jars labeled "250 milliliters." The process used to fill the jars is known to dispense an amount of jam that is a Normally distributed variable with $\mu = 252$ milliliters and $\sigma = 0.9$ milliliter. What proportion of the jars filled by the process will contain less than 250 milliliters?

a. 0.5
b. 0.9868
c. 0.0068
d. 0.0131
e. 0

10. Large data sets with quantitative variables are best displayed using _____.

a. stemplots
b. histograms
c. stemplots and histograms
d. none of the above

11. A well-known maker of jams and jellies packages its jams in jars labeled "250 milliliters." The process used to fill the jars is known to dispense an amount of jam that is a Normally distributed variable with $\mu = 252$ milliliters and $\sigma = 0.9$ milliliter. If changing σ while keeping μ the same were possible for this process, what should σ be set at so that the percent of jars filled with less than 250 milliliters will be at most 0.2%?

a. $\sigma = 2.38$
b. $\sigma = 1$
c. $\sigma = 0.69$
d. $\sigma = 0.82$
e. It should not be within ± 0.2 of any of the above.

12. When histograms are made, the classes _____.

a. should be equal in width
b. do not need to be equal in width
c. should be selected randomly
d. should always be a width of 10

13. A tool and die company has been contracted to produce metal castings into which a hole is to be drilled to a

diameter of 2.5 centimeters. Because of the variability in the drilling process, the actual diameter of the hole is a Normally distributed variable with a mean of 2.5 centimeters and a standard deviation of 0.1 centimeter. The proportion of castings produced by this process with a hole whose diameter is within 0.2 centimeter of the desired value is

a. 0.9772.
b. 0.9549.
c. 0.9974.
d. 0.6826.
e. 0.0228.

14. A set of midterm exam scores has a median that is much larger than the mean. Which of the following statements is most consistent with this information?

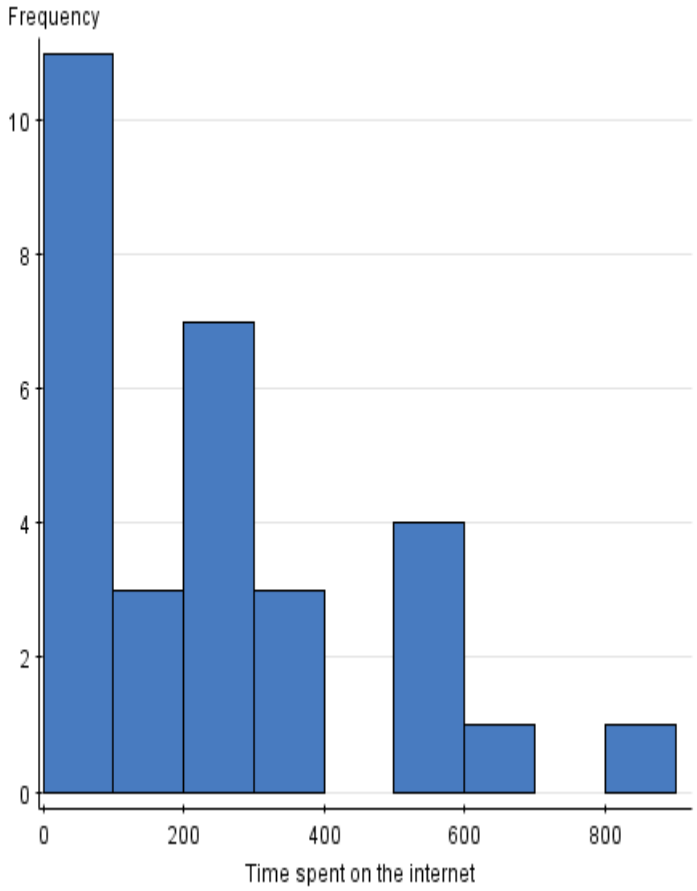
a. A stemplot of the data would be symmetric.
b. A stemplot of the data would be skewed left.
c. A stemplot of the data would be skewed right.
d. The data set must be so large that it would be better to draw a histogram rather than a stemplot.

15. Suppose you own a pizza delivery company and you are trying to determine the best campus on which to sell pizza. What would be the best measurement to make the comparison?

a. Average number of pizzas purchased
b. Count of pizzas purchased
c. Rate of pizzas purchased
d. None of the above

16. The histogram below shows data from 30 students who were asked, “How much time do you spend on the Internet in minutes?” Which of the following is a feature of the data?

Tutorial Ch 1



a. There is a potential outlier.

b. Most values are around 800.

c. The range of values is between 0 and 400.

d. None of the above

17. A market research company employs a large number of typists to enter data into a computer database. The time it takes for potential new typists to learn the computer system is known to have a Normal distribution with a mean of 90 minutes and a standard deviation of 18 minutes. A candidate is automatically hired if she learns the computer system in less than 100 minutes. A cutoff time is set at the slowest 10% of the learning distribution. Anyone slower than this cutoff time is definitely not hired. What proportion of candidates take more than 2 hours to learn the computer system?

a. 0.048

b. 0.452

c. 0.711

d. 0.952

18. During the early part of the 1994 baseball season, many sports fans and baseball players noticed that the number of home runs being hit seemed to be unusually large. Below are separate stemplots for the number of home runs by American League and National League teams based on the team-by-team statistics on home runs hit through Friday, June 3, 1994 (from the *Columbus Dispatch*, Sunday, June 5, 1994).

Tutorial Ch 1

American League

2	
3	5
4	0 3 9
5	1 4 7 8 8
6	4 8 8
7	5 7

National League

2	9
3	1
4	2 6 7 8 8
5	3 5 5 5
6	3 3 7
7	

Legend: In these stemplots, 2|9 represents 29.
What is the median number of home runs for the American League teams?

a. 45
b. 50
c. 50.5
d. 57.5

19. During the early part of the 1994 baseball season, many sports fans and baseball players noticed that the number of home runs being hit seemed to be unusually large. Below are separate stemplots for the number of home runs by American League and National League teams based on the team-by-team statistics on home runs hit through Friday, June 3, 1994 (from the *Columbus Dispatch*, Sunday, June 5, 1994).

American League

2	
3	5
4	0 3 9
5	1 4 7 8 8
6	4 8 8
7	5 7

National League

2	9
3	1
4	2 6 7 8 8
5	3 5 5 5
6	3 3 7
7	

Legend: In these stemplots, 2|9 represents 29.
What is the maximum number of home runs from a National League team?

a. 7
b. 70
c. 67
d. 48

20. Which of the following statements about the mean and the median of a density curve is FALSE?

a. The median is the point on the axis that divides the area under the density curve in two equal halves.
b. The median and the mean have the same value if the density curve is symmetric.
c. The mean is the “balance point” of the density curve.
d. The median of a skewed density curve is pulled away from the mean in the direction of the long tail.
e. For a symmetric density curve, both the mean and the median are at the center of the curve.

Name:_____ Class:_____ Date:_____

Tutorial Ch 1

Answer Key

1. c

2. d

3. d

4. b

5. c

6. c

7. c

8. d

9. d

10. b

11. c

12. a

13. b

14. b

15. b

16. a

17. a

18. d

19. c

20. d